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A NOTE ON THE GENUS *AUSTROLIMNIUS* C. & Z., WITH A DESCRIPTION OF A NEW SPECIES FROM FRENCH GUIANA (COLEOPTERA, ELMIDAE)

By H. E. Hinton, Ph.D.

(*Department of Entomology, British Museum (Natural History)*).

With 8 Text-figures.

The genus *Austrolimnius* was erected by Carter and Zeck (1929) in their monograph of the Australian Dryopidae to contain two species described by King (1865) in the genus *Elmis* Latr. and two new species. In the same work these authors erected the genus *Neosolus* to contain a number of new species. In 1932 they sunk *Neosolus* as a synonym of *Austrolimnius*.

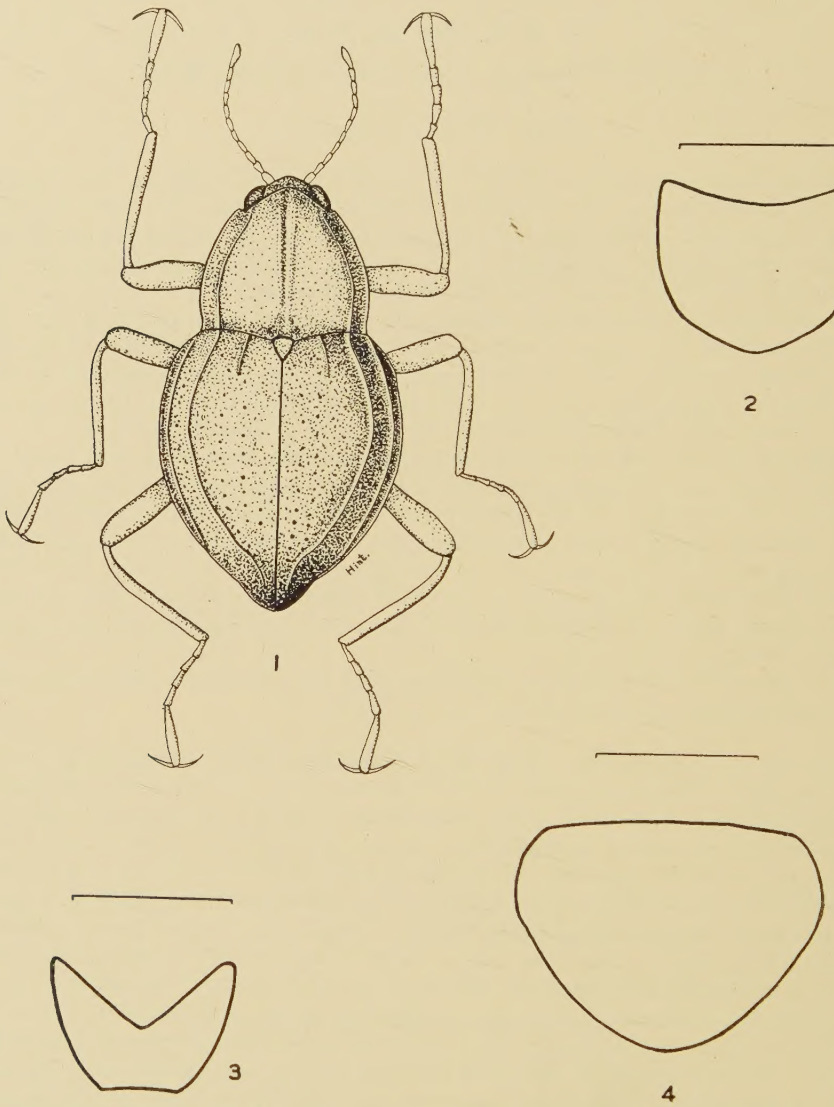
Austrolimnius is abundantly represented in Australia, there being now 10 species described from that continent, and is also widely distributed in South and Central America. The original description of the genus contains no mention of many characters of the external anatomy which are now known to be of the utmost importance in defining accurately the genera of Elmidae.

The line of close granules on the epipleura and the hind-wing with its very well-developed anal lobe and much reduced venation without an accompanying reduction in the length of the wing would seem to place *Austrolimnius* in a rather isolated position among the other members of its tribe. This conclusion is also supported by a recent study of the internal anatomy of which the most unusual features are the possession of a single sperm tube to each testis and the extraordinary degree of concentration of the abdominal ganglia of the central nervous system.

A re-description of the genus including both the characters of the external and internal anatomy is as follows :

Body obovate to subparallel. Dorsal surface glabrous or clothed with sparse and short recumbent hairs. Tomentum confined to the following areas: (1) genae; (2) epipleura; (3) occasionally (e.g. *A. luridus* C. & Z.) sides of elytra between inner margin of epipleura and outer sublateral carina; (4) hypomera; (5) sides of prosternum, mesosternum, metasternum, and abdominal sternites, but in some species nearly entire sternum of abdomen is clothed with fine tomentum; and (6) part or all of legs except tibiae and tarsi. *Head* when seen from below capable of being retracted so that none of mouth-parts is visible. Antennae 11-segmented. Mandibles with three apical blunt teeth; prostheca large and entirely membranous, with numerous fine spines or hairs apically. Maxilla with palp 4-segmented and stipes with a well-developed palpifer; galea and lacinia separate and apex of each densely spinose. Labium with palp 3-segmented and prementum with well-developed palpiger. Mentum transverse and about as broad as and two-thirds to three-fourths as long as submentum. Gula slightly narrower than submentum, about a third longer, and with sides nearly parallel. *Pronotum* with anterior margin moderately to strongly arcuate at middle and on each side behind eye before apical angle shallowly to deeply sinuate. Base tri-sinuate, broadly and moderately deeply so on each side and more narrowly and shallowly so in front of scutellum. Pronotum with sublateral carina on each side which extends from base nearly to apical margin and may or may not be prominent; disk with or without median longitudinal impression. *Elytra* impunctate or with distinct seriate punctures but seldom with striae which if present are only very feebly impressed;

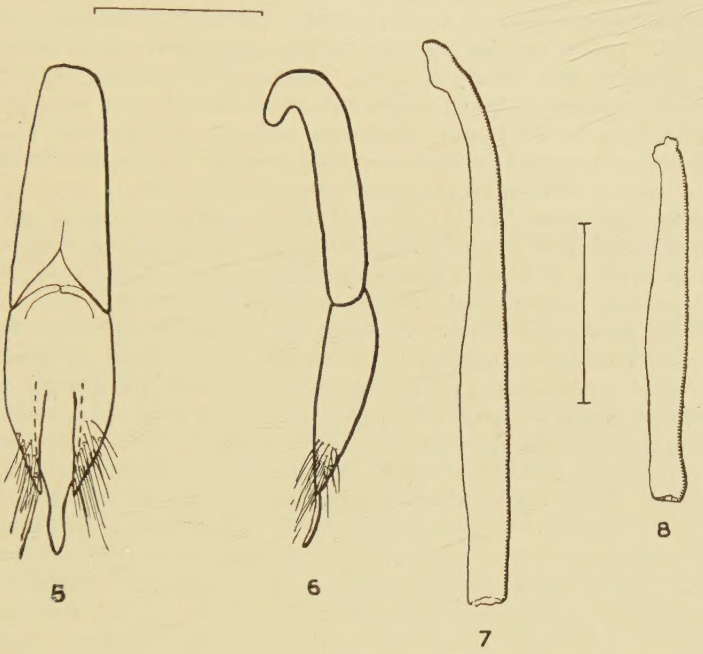
elytron with two prominent sublateral carinae. Epipleura with a longitudinal line of granules which on anterior two-fifths is half-way between dorsal and ventral margins, while on posterior three-fifths it is close and parallel to ventral margin. Hind-wings with venation much reduced; with well-developed anal lobe; without radial cross vein or anal



FIGS. 1–4.—*Austrolimnius musgravei* sp. n. 1, general appearance; 2, dorsal view of apical abdominal tergite; 3, ventral view of sixth abdominal sternite; 4, ventral view of fifth abdominal sternite. Lines next to figures correspond to a length of 0·20 mm.

cell; first anal absent; second anal without branches; third anal only present basally and joined to second anal at extreme base; fourth anal short and indistinct; and cubito-anal cross vein arising from second anal at about middle of latter's length but not complete

to cubitus. *Prosternum* very long in front of anterior coxae; prosternal process long and very broad and posterior margin broadly rounded. Mesosternum with a broad and deep groove for reception of prosternal process. Metasternum with median longitudinal impressed line. *Legs* with externally visible portion of front coxae rounded and trochantin completely concealed by hypomera and sternum. Claws without teeth. *Alimentary canal* with five caeca on anterior margin of mid-gut. Hind gut with six Malpighian tubules which end near rectum freely or imbedded in fatty tissue. *Male reproductive system* with one sperm tube to each testis. Each lateral accessory gland lobed. Female reproductive system with two egg tubes to each ovary, and with spermathecal duct opening posterior



FIGS. 5–8.—5, dorsal view of male genitalia of *A. musgravei* sp. n.; 6, right lateral view of same; 7, hind tibia of same species; 8, hind tibia of *A. curtulus* (Sharp). Lines next to figures correspond to a length of 0·20 mm.

to bursa copulatrix. *Central nervous system* with three thoracic discrete ganglia. First abdominal ganglion fused to third thoracic, second and third discrete, and fourth to eighth fused into a single large ganglion.

Genotype: *Austrolimnius politus* (King) (*Elmis*).

Austrolimnius musgravei sp. n. (figs. 1–7).

Male: Length, 1·43 mm.; breadth, 0·80 mm. Cuticle strongly shining and black; antennae, mouth-parts and legs rufo-piceous. *Head* with two feeble ridges each of which extends obliquely inwards from inner side near middle of eye to vertex but at vertex are not contiguous; surface microscopically alutaceous and with numerous flat-topped granules 0·015 mm. broad, or as coarse as facets of eyes, and usually separated by one diameter. Clypeus with fronto-clypeal suture deep, distinct, and nearly straight; anterior margin truncate and angle on each side very broadly rounded; surface with an occasional fine

granule and with numerous microscopic punctures. Labrum with anterior margin feebly rounded and angle on each side broadly rounded; surface smoother than that of clypeus and anteriorly at sides with numerous fine, long (0·11 mm.), golden-testaceous hairs which are erect to recumbent. *Pronotum* at broadest point, which is at basal third, slightly broader than long (0·60 mm. : 0·52 mm.) and base broader than apex (0·58 mm. : 0·35 mm.). Pronotum with carinae and impressions as figured (fig. 1); surface of disk with fine (0·007 mm. broad) punctures which are usually separated by one to two diameters; side between lateral margin and sublateral carina sculptured on anterior third somewhat like middle region of clypeus and on basal fourth or fifth with an asperate type of alutaceous microsculpture. *Elytra* about twice as long as pronotum (1·01 mm. : 0·51 mm.) and broadest point, which is between basal third and two-fifths, distinctly broader than broadest point across humeri. Lateral margins (*i.e.* inner margins of epipleura) nearly smooth. Apices conjointly produced and broadly rounded. Surface without striae; with three discal rows of seriate punctures which on middle disk are about 0·010 mm. broad and are separated longitudinally by five to seven diameters; towards apex punctures become denser and coarser so that on apical third they are twice as coarse and separated by three to four diameters; surface between seriate punctures moderately sparsely set with extremely fine microscopic punctures. Third (?) elytral interval with a very narrow and low carina (fig. 1) which extends from base 0·16 mm. posteriorly. Epipleura near inner margin from humeri to apical sixth with row of fine (not as broad as facets of eyes) close granules each of which is twice as long as broad; ventral to this with row of coarse granules which is present in all members of genus. *Scutellum* flat, subovate, and longer than broad. *Prosternum* with carinae prominent, nearly parallel, and extending to anterior margin; prosternum when viewed laterally with anterior two-fifths (not including process) moderately strongly but not sharply bent ventrally; process very broad (0·31 mm. opposite middle of anterior coxae) and middle apical third strongly depressed; surface moderately densely and microscopically punctate but surface of process more sparsely punctate and more highly polished. Hypomera with surface sculptured somewhat like middle of clypeus but with an occasional area of asperate microsculpture. Mesosternum with groove for reception of prosternal process very broad and not extending beyond posterior third. Metasternum with median longitudinal line indistinct but extending to anterior fourth; disk nearly flat, sparsely and microscopically punctate, and on each side near anterior two-fifths with a few closely placed long, recumbent, golden-testaceous hairs; carina on each side of disk prominent and nearly complete. Abdomen with no carinae on first sternite; fifth sternite broadly rounded at apex (fig. 4); sixth sternite as figured (fig. 3); apical tergite as figured (fig. 2). *Genitalia* (figs. 5–6) with median lobe narrowed before apex and extending much beyond lateral lobes. Apices of lateral lobes densely clothed with long and fine hairs.

Type : ♂, in the collection of the British Museum (Natural History). French Guiana : St. Laurent du Maroni, alt. about 50 ft., 12.x.1937 (*H. E. Hinton*).

Comparative notes : This species appears to be most nearly related to *A. curtulus* (Sharp) of Panama, but may be distinguished as follows : (1) the longitudinal impression on the pronotal disk of *curtulus* is much deeper; (2) the sublateral pronotal carinae of *curtulus* are broader and more strongly raised, as is also the carina of the third interval of each elytron; and (3) the legs of *curtulus* are very much shorter (*vide* figs. 7–8). The males of *musgravei* may be distinguished at once from those of *sulcicollis* (Sharp) by the absence of a tooth on the hind tibia and teeth on the hind trochanter.

This species was found among dead leaves in a small stream (4 feet broad and 1–2 feet deep) in a rain forest. I take great pleasure in naming it in honour of Dr. P. N. Musgrave.

Austrolimnius chiloensis (Champ.).

1918. *Elmis chiloensis* Champ., *Ent. mon. Mag.*, **54** : 48.
1936. *Elmis prothoracica* Hinton, *Ent. mon. Mag.*, **72** : 56.

A. chiloensis (Champ.) is a typical member of the genus *Austrolimnius* C. & Z. It was sunk as a homonym of *Elmis chilensis* Germain (1854) through a misapplication of Article 35, Section A, of the International Code of Zoological Nomenclature.

Book Notice.

A Contribution to the Biology of North American Vespine Wasps. By C. D. Duncan. (Stanford Univ. Publ. Biol. Sci. 8, No. 1.) pp. 272, 255 figs. 8vo. London (Humphrey Milford). 1939. 15*s*.

This work is presented in four sections containing: 1. Introduction; 2. The morphology of *Vespula pensylvanica* (Sauss.); 3. Systematic considerations; 4. Biology of the Vespinae.

The author has worked for 20 years on wasps in America and has specialised on *V. pensylvanica* which insect is described at great length and sufficient detail. Many entire colonies were collected and studied in the laboratory, and a careful census of their contents made. Field observations on individual wasps have supplemented these notes. Several thousand pinned specimens have been examined from many collections.

An exhaustive review of the literature has not been made, but the work of others has been used where it has seemed that the author's presentation of the facts would thereby be improved. Long-established facts have not been traced to their origin in the literature.

In addition to the many figures of details of anatomy and structure, a very large selection of illustrations of nests and their contents is given. The illustrations are successfully reproduced by half-tone reproduction on uncoated paper.

NOTES ON THE COLEOPTEROUS FAMILY LANGURIIDAE AND DESCRIPTIONS OF A FEW NEW AFRICAN SPECIES

By Gilbert J. Arrow, F.R.E.S.
(*British Museum (Natural History)*).

In 1929, *Proc. zool. Soc. Lond.* **1929**, I published a list of the species of Languriidae known at that date to inhabit Africa and Madagascar, numbering 63 species in all, one-third of which were previously unknown. Having been enabled by the kindness of the staff of the Entomological Institute, Berlin-Dahlem, to compare the types in that collection with those in the British Museum, that list has become slightly reduced. These two collections contain, with very few exceptions, all the African types of Languriidae.

I am unable to regard *Anadastus brunneus* and *rufobrunneus*, of Kraatz, as two different species. The rather more prominent eyes and slenderer antennae of the latter probably indicate the male sex. The club of the antenna is described by Kraatz as 5-jointed in *brunneus* and 3-jointed in *rufobrunneus*, but this is misleading. The difference is extremely slight and I consider *rufobrunneus* a synonym of *brunneus*.

It is probable that *A. semirufus* Kr. (type in the Dahlem collection) is a variety of *A. semiflavus* Thoms. (type in the British Museum), but as I have seen only these two specimens, I prefer to await an opportunity of examining further examples before pronouncing judgement. The two specimens agree in all important respects, but Thomson's type is entirely red beneath, while that of Kraatz is dark beneath, with the head and prosternum only red.

A close examination of the type of *Anadastus dubius* Fowler shows it to be a discoloured specimen, in which the prothorax, normally bright red, is black, of the species described by me as *A. congoensis*, and *A. spectabilis* Kr., which differs only in having the legs also red, is a variety of it.

Only one African species, *Paracladoxena steelei* Arrow, has been added to the list up to the present time, but a few more are here described from the British Museum collection, bringing the total number to sixty-seven.

Anadastus alternatus sp. n.

Laete flavus, pronoto elytrorumque dimidio postico aeneoviridibus, antennis, basi excepto, femoribus et tibiis partim abdominisque parte posteriori nigris; nitidus, angustus, fere nudus, sed capite, elytris postice corporeque subtus minute vix perspicue griseo-setosis; capite et pronoto sat aequaliter, parum crebre punctatis, oculis sat magnis, prominentibus, pronoto latitudine fere ad longitudinem aequali, postice leviter contracto, angulis anticis obtusis, posticis acutis; elytris fortiter, haud crebre seriato-punctatis, intervallis fere impunctatis, apicibus truncatis; corporis subtus lateribus fortiter sat parce, medio minute et parcissime, punctato; antennis gracilibus, clava lata, triphylla. Long. 5·5–6·5 mm.

Tanganyika: Ukerewe I., L. Victoria (*P. A. Conrads*); Uganda: Bukumbi (*H. Hargreaves*) July (type); W. Africa: Dahomey.

Type in the British Museum; co-types in Herr L. Mader's collection. Taken on Coffee by Mr. Hargreaves.

The wide distribution of this insect is remarkable. The single West African specimen is one of a small collection from Whydah and Abomey which reached

the Museum in 1853. The very peculiar coloration of the species renders it unmistakable. It is related to *A. dimidiatus* Guér., and *A. terminalis* Arrow, in which also the elytra are bright yellow in the anterior and blue-black in the posterior part. The head, dark in the other two species, is bright yellow in *A. alternatus*. The eyes are more prominent, the pronotum is more convex, less dilated in front, with blunter front angles and more rounded sides. The basal part is distinctly depressed and the lateral foveae, which in *A. dimidiatus* and *terminalis* are reduced to vestiges, are strong and deep.

Anadastus socialis sp. n.

Rufo-flavus, pedibus (basi tarsisque exceptis) infuscatis, antennis rufis, clava nigra, elytrorum punctis brunneis; sat angustus, fortiter punctatus, pronoto transverso, postice valde contracto, distincte punctato, foveis basalibus profundis, sat longis, lateribus leviter bisinuatis, angulis anticis obtusis, posticis acutis; elytris fortiter seriato-punctatis, intervallis planis, fere impunctatis, apicibus truncatis; corpore subtus lateraliter fortiter punctato, lineis abdominalibus nullis; antennarum dimidio apicali nigro, clava triphylla sat lata. Long. 5–6 mm.

Tanganyika: Ukerewe I., L. Victoria (*P. A. Conrads*); Kenya: Simba, 3250 ft. (*S. A. Neave*) April; Nyasaland: Mlange (*S. A. Neave*) April (type); Rhodesia: Chirinda, Gazaland (*G. A. K. Marshall*) Dec.

Type in the British Museum; co-types in Herr L. Mader's collection.

This is nearly related to *A. natalensis* Gorh., but is darker in colour and more strongly punctured, the pronotum more transverse, more contracted behind, with long, strongly impressed, lateral foveae. It is related also to *A. lyctoides* Fowler, which is unknown to me, but in that species the pronotum is much longer than broad, the sides subparallel and the lateral foveae rather indistinct. It is described as pitchy-brown, including the underside, antennae and legs. The new species is deep yellow in colour, but the punctures are stained with brown, producing the appearance of a darker shade. The lower surface is reddish-yellow, the legs are black, except at the base, and the antennae red, with the club black.

Anadastus gravis sp. n.

Nigro-coeruleus, capite prothoraceque laete rufis; parum angustus, sat brevis, convexus, punctatus, paulo nitidus, corpore subtus capiteque breviter griseo-setosis, hoc haud crebre punctato, oculis sat magnis, haud prominentibus; pronoto lato, sat fortiter punctato, lateribus antice paulo convergentibus, postice parallelis, angulis anticis rotundatis, posticis rectis, basi trisinuato, foveis lateralibus profundis, antice productis; elytris fortiter et crebre striato-punctatis, intervallis minute irregulariter punctatis, leviter rugulosis, apicibus haud distincte truncatis; corpore subtus ubique fortiter et aequaliter punctato; antennis brevibus, clava 4-articulata, modice lata. Long. 6–7 mm.

Uganda: Entebbe (*S. A. Neave*) Jan.; Mt. Kokanjiro, 6400 ft. (*S. A. Neave*) Aug. (type).

Type in the British Museum.

A. gravis resembles *A. elytralis* Arrow, but is shorter and stouter, as well as more strongly punctured. The head and prothorax are blood-red above and beneath, and the elytra, metasternum and abdomen blue-black, as well as the antennae and legs, the legs and lower surface with a greenish metallic lustre. It is not very shining, the whole surface, above and beneath, being strongly and evenly, but not closely, punctured. The pronotum is very

convex, scarcely contracted at the base, and the lateral foveae are large and deep.

Anadastus egregius sp. n.

Brunneo-viridis, aureo-nitens, parum elongatus, convexus, sat crebre punctatus, corpore subtus capiteque griseo-setosis, hoc fortiter punctato, oculis sat magnis, parum prominentibus; pronoto transverso, ubique aequaliter modice crebre punctato, lateribus antice fere parallelis, postice leviter convergentibus, angulis omnibus paulo productis, posticis acutis, basi paulo depresso, foveis lateralibus brevibus, profundis; elytris crebre et fortiter striato-punctatis, intervallis irregulariter paulo minutius punctatis; antennis robustis, clava lata, articulo ultimo transverso. Long. 6 mm.

Uganda: Mujuga (*H. Hargreaves*) Mar. (type); Bukumbi (*H. Hargreaves*) July; Bursuma (*G. L. R. Hancock*) Mar.; Kampala Rd., Kafu R., 3500 ft. (*S. A. Neave*) Dec.

Type in the British Museum.

This is a strongly metallic species, of short and stout build and with little resemblance to any other known member of the genus. It is strongly and closely punctured, with the eyes not very small, the pronotum short and broad, the broadest part a little before the middle, and the sides very slightly converging before and behind. One specimen, which I believe to be the male, is more bright and shining, the puncturation of the upper surface is less strong and close, the eyes are a little more prominent and the 8th joint of the antenna is not distinctly transverse, so that the club is 3-jointed. In the other three specimens it is distinctly 4-jointed.

Anadastus pallidisternum sp. n.

Laete coeruleus, corpore subtus toto flavo, pedibus antennisque fere nigris, basi flavis; angustus, nitidus, capite modice punctato, vix perspicue setoso, oculis sat magnis, prominentibus; pronoto leviter transverso, minute et parce punctato, postice fortiter angustato, depresso, foveis lateralibus minutis, lateribus leviter bisinuatis, angulis anticis obtusis, posticis acutis; elytris grosse et profunde seriato-punctatis, intervallis paulo convexis, vix punctatis, humeris prominentibus, apicibus attenuatis, truncatis; corpore subtus parce albido-setoso, lateraliter fortiter punctato; pedibus antennisque sat gracilibus, horum clava 4-articulata, sat angusta et laxe articulata. Long. 5 mm.

Tanganyika: Ukerewe I., L. Victoria (*P. A. Conrads*) (type); Uganda: Toro, Mpanga Forest, 4800 ft. (*S. A. Neave*) Nov.

Type in the British Museum; co-types in Herr L. Mader's collection.

This species closely resembles *A. latipennis* Arrow, also found in Uganda, but the entire lower surface is pale, whilst in *A. latipennis* the sternum is dark and the abdomen only pale. It is a rather more slender insect, the eyes are rather more prominent, the pronotum a little more contracted behind, the elytra narrower, more produced behind and rather less strongly and deeply punctured.

Penolanguria flavicornis sp. n.

Fusco-cuprea, antennis pedibusque flavis; angusta, nitidissima, capite punctato, griseo-setoso, oculis parvis, prominentibus; pronoto minute, sat aequaliter, haud crebre punctato, antice fortiter gibboso, postice angustato, lateribus leviter bisinuatis, angulis anticis rotundatis, posticis acutis sed haud productis; elytris convexis, minute sat numerose seriato-punctatis, dimidio posteriori attenuato; corpore subtus griseo-setoso, sterni lateribus sat fortiter punctatis; antennis gracilibus, clava haud lata. Long. 3·5–4·5 mm.

Kenya: W. Aberdare Mts., 10,000–11,000 ft. (*A. F. J. Gedye*) Nov.; (*H. J. Turner*) March, April; Gura, 7500 ft. (*R. E. Dent*) Aug.; Nanyuki, 5500 ft. (*A. F. J. Gedye*) Dec. (type); Meru, 5000 ft. (*A. F. J. Gedye*) Aug.

Type in the British Museum.

Penolanguria flavicornis closely resembles the type-species of the genus, *P. minuta* Kolbe. It is distinctly larger, the upper surface is dark metallic coppery, the legs and antennae, including the club, yellow. The head is more strongly punctured, finely hairy, the eyes a little larger than those of *P. minuta*. The punctures of the pronotum and elytra are fine, but rather less fine and distinctly more numerous than in the type-species, the pronotum is still more convex in its anterior part and its hind angles are sharp but not produced. The antennae are slender, the club rather loosely jointed and not broad.

P. monacha Kraatz, and *ovalipennis* Arrow, being more naturally assigned to the genus *Paracladoxena*, four species of *Penolanguria* remain. They may be tabulated as follows:—

1 (4). Antennae long, with narrow club.
2 (3). Brown, not metallic, the antennae not paler. . . *minuta* Kolbe.
3 (2). Upper surface coppery, antennae yellow . . . *flavicornis* sp. n.
4 (1). Antennae short, with broad club.
5 (6). Black; eyes rather large . . . . . *nigerrima* Kraatz.
6 (5). Brown; eyes rather small . . . . . *callosipennis* Kraatz.

Book Notice.

Sveriges Skogsinsekter. By I. Trägårdh. Andra . . . upplagen. 8vo. Stockholm (Geber). 1939. pp. xii + 509, 570 figs. Price 20 Kr.

This book is a new edition of Dr. Trägårdh's work on Forest Insects. The first six chapters deal with an order of insects and the seventh with Acarina. Chapter eight is concerned with harmful insects and forests, and chapters nine to twelve with methods of control and investigation, and chapter thirteen is a table for the identification of insects arranged under host trees on which they are to be found alive.

Whilst the book is obviously addressed in the first instance to the Swedish forester and forest entomologist, it will have a wider circle of users by reason of the many excellent illustrations. Many of the illustrations depict typical results of attack on trees by insects and should be useful as means of identification.

A NEW SPECIES OF MALAYAN *TRAULIDEA* (ORTHOPTERA-ACRIDIDAE)

By N. C. E. Miller, F.R.E.S., F.Z.S.
(*Entomologist, Department of Agriculture S.S. and F.M.S.*)

The new species described herein was captured in a garden adjoining an area of secondary jungle, from which it had presumably been driven by a fire. The type has been deposited in the collection of the British Museum (Natural History), London.

Traulidea vagans sp. n.

Colour: Antennae castaneous; nine basal segments paler; segments 1 and 2 suffused with whitish on internal surface; 2 apical segments pale green. Eyes black, with the lower margin narrowly white. Head black with a stripe from apex of vertex bifurcating along inner margin of eyes to base, a stripe from scrobes to posterior margin of genae, a spot on frontal ridge, two spots on clypeus and mandibles, white; two pale ochreous spots on labrum; palpi pale green suffused with castaneous apically; labrum and mandibles greenish-black. Pronotum black with a lateral stripe on disc and a median stripe on lateral lobes white. Pleura with a median transverse white stripe; mesothoracic episternum with a white spot anteriorly. Elytra fuliginous with the reticulation along *vena media* and in costal area narrowly white. Wings fuliginous. Abdomen black with a narrow, longitudinal median stripe mid-dorsally and two spots on supra-anal plate white; sub-laterally and laterally dorsally and laterally ventrally on segments 4–7 suffused with greyish-blue and pale ochreous; apical margins of all segments ventrally suffused with pale greyish-blue. Anterior and median legs green; posterior femora black with the knee piceous, a pregenicular annulation white, genicular lobes, a narrow suffusion at each side of annulation and lower internal face bluish; posterior tibiae dark bluish-black, basally black and with a sub-basal bluish-white suffusion; spines black; basal segment of posterior tarsi bluish; remaining segments green.

Structure: Antennae extending beyond apex of abdomen. Eyes broadly ovate with anterior margin almost straight. Interocular distance a little shorter than width of frontal ridge between antennae; fastigium of vertex with a shallow elongate depression; vertex with scattered punctures; lower area of genae and face somewhat coarsely rugose punctate. Pronotum rugose punctate; median carina distinct but somewhat irregular; transverse sulci distinct, the second and third continued on lateral lobes; lower anterior margin of lateral lobes feebly concave; lower posterior margin straight. Prosternal spine acute, conical. Elytra somewhat narrow, narrowly rounded apically, extending to apical margin of 7th abdominal segment. Supra-anal plate triangular, rounded apically and with a longitudinal shallow depression basally and apically. Cerci simple, straight, acute apically. Posterior tibiae with 8 spines on inner and outer surfaces.

Total length 15·00 mm.; pronotum 3·20 mm.; elytra 7·20 mm.; posterior femora 9·00 mm.

Described from 1 ♂ (type): Federated Malay States, Kuala Lumpur, Selangor, 23.v.1939 (*N. C. E. Miller*).

The colour description is from a fresh specimen.

NEW SPECIES OF STAPHYLINIDAE (COL.) FROM AFRICA

By Malcolm Cameron, M.B., R.N., F.R.E.S.

Types of the new species described here are in the collection of Mons. J. Clermont, unless otherwise stated, when they are in my collection as are the cotypes.

Bledius (Pucerus) nodieri sp. n.

Black; the head dull, the rest more shining; the elytra with a reddish-yellow marking occupying the postero-external region and extending from almost the apex of the suture to a little behind the middle of the reflexed margin; the last segment of the abdomen yellowish. Antennae and legs reddish-yellow. Length 2·5 mm. Size and build of *husseini* Quedf., the antennae similarly constructed but at once distinguished by the colour of the elytra; the sculpture of the head and thorax scarcely differs in the two species, but the posterior angles in *nodieri* are completely effaced and the elytra are obviously more coarsely and deeply punctured. In all other respects like *husseini*.

H. Sénégal: Badoumbé (*Nodier*).

Lithocharis atriceps sp. n. (Fauvel *in litt.*).

Head black, greasy lustrous, the rest more shining, thorax and abdomen yellowish-red, elytra reddish-yellow. Antennae and legs reddish-yellow. Length 3 mm. Colour, size and lustre of *sororcula* Kr. but with the head not so broad, as broad as long, the puncturation much coarser and deeper; the antennae as in that species; thorax more finely and scarcely as closely punctured, the elytra more finely and more closely punctured than in *sororcula*, the abdomen as in that species, closely and finely punctured and pubescent throughout.

♂. 5th sternite truncate and in the middle with short black teeth closely placed: 6th with rectangular excision. These characters are very like those of *sordida* Cam., but the pectinate region of the 5th sternite is broader than in that species and the excision of the 6th is broader and rectangular.

British Somaliland: Dolphin Bay (*Cameron*) Type. H. Sénégal: Badoumbé (*Nodier*).

Cryptobium externum sp. n. (Fauvel *in litt.*).

Rather shining, black, the posterior margin of the elytra narrowly, the postero-external angle more broadly, reddish-yellow. Antennae reddish. Legs yellow. Length 6 mm.

Very near *cribripenne* Epp. but less coarsely punctured and with the posterior margin of the elytra reddish-yellow. Head oblong, the sides parallel behind the rather prominent eyes, the posterior angles broadly rounded, the whole surface except for a narrow area along the anterior border, closely and rather coarsely punctured. Antennae with the intermediate joints longer than broad, decreasing in length, the 7th to 10th as long as broad. Thorax distinctly longer than broad, the sides feebly rounded in front, slightly sinuate and a little retracted behind, along the middle with rather broad, somewhat raised impunctate area, elsewhere coarsely and closely punctured like the head. Elytra a little longer than the thorax, a little more coarsely and more closely punctured. Abdomen finely and closely punctured throughout.

♂. 2nd and 3rd sternites with a short transverse ridge across the middle; 5th with a broad nearly parallel-sided glabrous impression along the whole length: 6th deeply, broadly arcuately emarginate.

H. Sénégal: Badoumbé (*Nodier*).

Conosoma senegalense sp. n.

Head black, the front reddish-yellow: thorax blackish, with the base and sides broadly reddish-yellow: elytra red with a large spot occupying the side (except the shoulders and apex), and a narrow sutural mark (sometimes indistinct) not reaching the base or apex, pitchy-black: abdomen with the first two visible segments reddish-yellow, the following black. Antennae reddish-yellow, the 4th to 6th joints infuscate. Legs reddish-yellow. Length 2 mm. (abdomen retracted).

Size and convex build of *bipunctatum* Gr. but of different colour and the elytra without lateral setae. Head with a few minute punctures; ground-sculpture absent. Antennae slender, extending to about the posterior angles of the thorax, the penultimate joints as long as broad. Thorax transverse (7·3 : 5), the sides gently rounded, more retracted in front, extremely finely, very closely punctured (much more finely and closely than in *bipunctatum*) and without ground-sculpture. Elytra a little longer (5·5 : 5) than the thorax, broader than long, a little narrowed behind, as closely and as finely punctured; abdomen densely and finely punctured, the sides with long black setae. Except for the head, the whole insect is closely covered with a fine, close yellow pubescence.

H. Sénégal: Badoumbé, 1.v.1882 (*Nodier*).

Zyras (Camonia) militaris sp. n. (Fauvel *in litt.*).

♂. Fore-parts greasy lustrous; head and elytra black, the latter with the base and shoulders obscurely reddish-yellow; thorax red: abdomen shining, the first three visible segments red, the following black. Antennae reddish-brown. Legs reddish-yellow. Length 8 mm.

A large parallel species, very like *schuberti* Bernh. but differing in the longer, very finely but distinctly punctured thorax, the colour of the abdomen, the slightly stouter antennae and the coriaceous frontal tubercle. Head transverse, as broad as the thorax, the eyes large and prominent, much longer than the rounded postocular region, the disc flattened, between the insertion of the antennae with a large tubercle, not shining but more strongly coriaceous than the rest of the surface which is also very finely and not closely punctured. Antennae rather stout, extending a little beyond the base of the elytra, the penultimate joints distinctly transverse, the 11th about as long as the three preceding together.

Thorax slightly transverse (5·3 : 5), trapezoidal, the sides rounded for the anterior two-fifths, straight and retracted behind, along the middle rather broadly but superficially impressed for the posterior three-fourths and with trace of an impressed (but not shining) line, the whole surface coriaceous like the head, finely, not closely punctured, the punctures closer and less fine on the disc than elsewhere. Elytra broader and a sixth longer than the thorax, a little wider behind, coriaceous and a little less finely punctured than the thorax. Abdomen nearly parallel, almost impunctate, the ground-sculpture very feeble, the 3rd segment with a pair of long, strong pointed processes curved at the base and overlying the lateral margin to the posterior margin of the 5th segment, the inner aspect of the basal half with four or five little tubercles, the space between the bases of the processes deeply, triangularly impressed: 6th segment with a tubercle in the middle and a transverse row of four very small ones near the posterior margin: 7th with four

little tubercles more or less quadrately placed; 8th nearly truncate, the surface with a few small granules. The whole insect practically glabrous.

H. Sénégal : Badoumbé 1.v.1882 (*Nodier*).

Zyras (Grammodonia) fauvelianus sp. n. (biseriata Fauv. *in litt.*).

Shining : head blackish, reddish in front, the rest yellowish-red. Antennae reddish-brown, the first two joints and legs reddish-yellow. Length 5 mm. Very like *frontalis* Er. in size and colour, but with stouter antennae, the thorax with the sides straighter behind, the posterior angles distinct and obtuse and with a dorsal row of small, more or less paired punctures on each side of the smooth median line and elsewhere less finely and less uniformly punctured, the elytra also a little shorter and less closely punctured than in that species. It would also appear to be very near *bilineatus* Bernh. but of larger size, the head finely and sparingly punctured, the thorax with distinct obtuse posterior angles and feeble lateral impression, the elytra broader than long and the abdomen almost impunctate. Head narrower than the thorax, transverse, the eyes large, much longer than the rounded temples, convex, finely and sparingly punctured and without ground-sculpture. Antennae moderate in length, the 3rd joint as long as the 2nd, 4th scarcely, 5th to 10th more strongly transverse, the penultimate about twice as broad as long, the 11th nearly as long as the three preceding together. Thorax slightly transverse, the sides straight and retracted behind, the posterior angles distinct and obtuse, at the sides feebly obliquely impressed postero-externally, before the scutellum with small transverse impression; on each side of the impunctate median area with a double row of small, closely placed, more or less paired punctures, externally with a nearly impunctate region, towards the sides finely and moderately closely punctured; ground-sculpture absent. Elytra very slightly longer than the thorax, slightly broader than long (5 : 4), moderately finely, rather sparingly punctured. Abdomen almost impunctate.

H. Sénégal : Khayes, 11.xii.1881 (*Nodier*).

Book Notice.

A laboratory introduction to animal ecology and taxonomy. By O. Park, W. C. Allee and V. E. Shelford. 8vo. Chicago (University of Chicago Press, Cambridge University Press). 1939. Price 10*s*. pp. x + 272, 17 figs.

This unusual volume is printed on single leaves and bound by a series of stout metal rings in a cover. By this means the book always lies flat when open if care be taken not to tear the leaves.

The work was produced to meet the needs of University teachers and is based on experience in teaching requirements. It is a laboratory guide with keys prepared with particular reference to freshwater and terrestrial habitats of the deciduous forest region in North America.

An introduction on the inter-relationship of animals with their environments is followed by a series of "Exercises" on terrestrial and freshwater animals in the form of inspired questionnaires.

Next is given a series of synoptic keys to the Phyla of the animal kingdom.

A glossary, bibliography, taxonomic index and subject index complete the book.

ZWEI WENIG BEKANNTE *HETRODES*-ARTEN (ORTHOPTERA, TETTIGONIIDAE)

Von Dr. R. Ebner.
(*Wien.*)

Communicated by B. P. Uvarov, D.Sc., F.R.E.S.

Bei der Bearbeitung der Hetrodinen für den *Orthopterorum Catalogus* kam ich sehr bald auf *Hetrodes variolosus* Fieber. Diese Art wurde 1853 ohne Angabe der Herkunft recht gut beschrieben, aber von den späteren Autoren kaum mehr berücksichtigt; Kirby führt sie 1906 als fraglich bei *Hetrodes* an. Da mir die Type im Wiener Museum zur Verfügung stand, nahm ich eine kurze Untersuchung vor: sie ergab die sichere Einreihung in das Genus *Hetrodes*. Ich gebe im nachfolgenden eine Neubeschreibung dieser kaum bekannten Art, sowie die Beschreibung einer anderen interessanten Form aus dem Wiener Museum.

Hetrodes variolosus Fieb. (figs. 1–3).

Fieber, 1853, *Lotos* **3** : 259, ♀; 1854, *Syn. Eur. Orth.* : 75, ♀.
Kirby, 1906, *Syn. Cat. Orthopt.* **2** : 154 (*H.* (?) *variolosus*).
Ebner, 1939, *Orthopt. Cat.* **2** : 75.

♀. Das Tier ist sehr schlecht erhalten. Der Kopf ist nur noch zu einem kleinen Teil vorhanden, Pronotum mit einigen Löchern, von den Beinen ist überhaupt nur mehr der Schenkel des linken Mittelbeines erhalten (14 mm. lang).

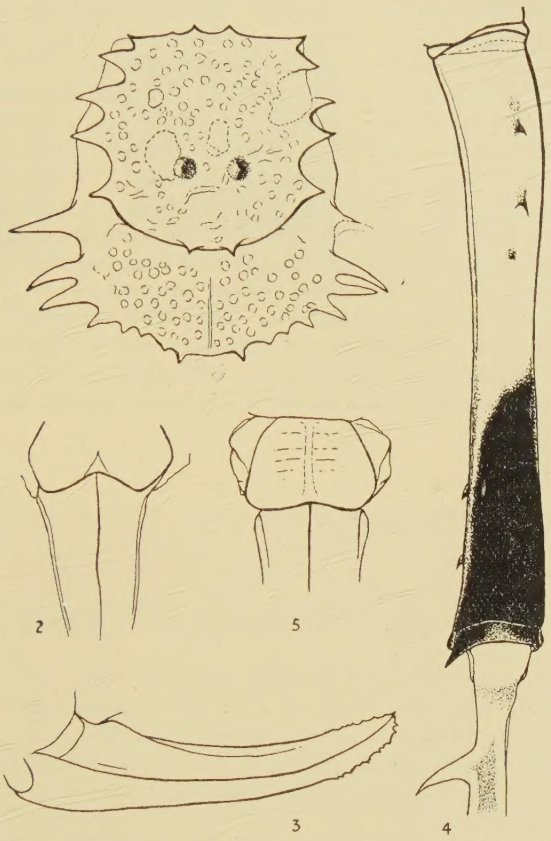
Grau bis dunkelbraun, Abdomen jederseits mit einem helleren Längsstreifen. Ovipositor oben an der Basis mit einem dunkleren Längsstreifen, auch gegen die Spitze zu dunkler. *Kopf* zwischen den Antennen mit stumpfem Dorn. Pronotum oben matt, mit vielen kleinen runden Eindrücken, sodass es wirklich wie blatternartig aussieht. Seiten des Pronotums glänzend, mit kleineren Eindrücken. Prozona des Pronotums lang und von 14 Dornen umgeben; davon stehen an jedem Seitenrand 5, am Vorder- und Hinterrand der Prozona je 2 Dornen; ausserdem ist an der linken Seite am Vorderrand noch 1 ganz kleiner Dorn. Prozona hinter der Mitte mit 2 kurzen aufrechten Dornen, in deren Umgebung etwas runzelig. Metazona des Pronotums jederseits mit 8 Dornen, von denen die 2 vorderen am grössten sind; 6. und 7. Dorn besonders klein. Vordercoxen stark bedornt. Linker Mittelschenkel aussen mit 2 Reihen von runden Eindrücken, unten an der Aussenseite mit 2 Dornen. Abdomen mit 7 Längsreihen von Dornen, von denen die der zweiten, vierten (= mittleren) und sechsten Reihe viel grösser sind als die der 4 übrigen Reihen. Zwischen der 2. und 3., sowie zwischen der 5. und 6. Reihe befinden sich die beiden helleren Längsstreifen. Abdominal-Segmente ausserdem mit zahlreichen sehr kleinen Tuberkeln. Cerci kurz und spitz. Subgenitalplatte gross und breit, aber wegen des ganzen Erhaltungszustandes im basalen Teil schlecht zu sehen, am freien Rand flach und ausgebuchtet, hinten in der Mitte mit einem kurzen Längseindruck. Ovipositor anfangs ziemlich gerade, dann deutlich nach aufwärts gebogen und namentlich unten gegen die Spitze gesägt.

Körperlänge ca. 36 mm.
Pronotum 14·5 mm. (Prozona 9·5 mm.)
Ovipositor 19 mm.
Patria?

1 ♀, Type. Coll. Brunner von Wattenwyl, No. 9713, *ex* coll. Fieber.

Wenn auch der Fundort nicht bekannt ist, so ist wohl kaum zu zweifeln, dass das Tier aus dem Kapland oder mindestens aus Süd-Afrika stammt.

Obwohl schlecht erhalten, gestattet das Tier doch die sichere Einreihung in das Genus *Hetrodes* Fisch.-Waldh. Von der bekanntesten Art *pupus* L. (1758) weicht das vorliegende Tier sicher ab : vollkommen andere Skulptur des Pronotums, Prozona des Pronotums sehr lang, Ovipositor viel kürzer, Subgenitalplatte anders beschaffen. Aber bei der beträchtlichen Variabilität, welche anscheinend die meisten Arten dieser Gattung namentlich bezüglich der Bedornung zeigen, ist ein Vergleich damit nicht leicht. Am ehesten käme noch *marginatus* Walk. (1869) in Frage. Die für *variolosus* so typische Skulptur



Figs. 1–3.—*Hetrodes variolosus*; 1. ♀, Pronotum von oben; 2. ♀, Subgenitalplatte und Basis des Ovipositors; 3. ♀, Ovipositor von der Seite.

Figs. 4–5.—*Hetrodes namaqua* ab. *maculipes*; 4. ♀, rechter Hinterschenkel von oben; 5. ♀, Subgenitalplatte.

des Pronotums ist wenigstens teilweise auch bei *knysna* Pér. (1916) = *marginatus* Walk. vorhanden; jene Art ist aber durch 6 Dornen am Pronotumvorderrande von *variolosus* verschieden. Aber wenn auch *variolosus* mit einer anderen Art identisch sein sollte, so muss der Name nach seinem Alter (1853) unbedingt erhalten bleiben.

Hetrodes namaqua Pér. **maculipes** ab. n. (figs. 4–5).

♀. Beide Antennen, rechtes Vorderbein und rechtes Mittelbein fehlen. Körper oben ziemlich dunkelbraun, an den Seiten und unten hellbraun. Alle Schenkel glänzend,

gelbbraun, oben distal mit einem grossen braunschwarzen Fleck. *Kopf* mit einem kurzen und ziemlich spitzen Dorn zwischen der Basis der Antennen. Pronotum lang, seine ganze Oberfläche runzelig, nur die hintere Hälfte der Prozona trägt mehrere ziemlich grosse, glatte, helle Stellen. Seitenlappen des Pronotums fein gerunzelt und namentlich in der hinteren Hälfte glänzend. Alle Ränder des Pronotums etwas heller und besonders an den Seiten aufgeworfen. Prozona des Pronotums am Vorderrand mit 4 Dornen. An jeder Seite der Prozona stehen 4 starke Dornen; auf den letzten folgt unmittelbar jederseits 1 ganz kleiner Dorn, der eigentlich schon zum Hinterrand der Prozona gehört. Ausserdem befinden sich am Hinterrand nahe der Mitte noch 2 Dornen. Die Prozona ist also im ganzen von 16 Dornen umgeben, von denen die 8 seitlichen am grössten sind. Diskus der Prozona hinter der Mitte mit 2 kurzen aufrechten Dornen. Metazona des Pronotums jederseits mit 7 Dornen, die von vorn nach hinten an Grösse abnehmen, doch ist der letzte Dorn (nahe der Mitte des Hinterrandes) wieder grösser. Vordercoxen in einen kräftigen spitzen Dorn ausgezogen. Vorderschenkel aussen ohne Dornen, innen vor der Spitze mit 1 ganz kleinen Dorn. Mittelschenkel aussen mit 2 Dornen, innen mit 1 Dorn an der Unterseite. Hinterschenkel oben im basalen Teil mit 3–4 Dornen, unten an der Aussenseite mit 3, an der Innenseite mit 2 Dornen. Hinterschenkel distal an der Innenseite in einen spitzen Dorn ausgezogen. Hintertibien aussen mit 4, innen mit 5–6 Dornen, von denen die vorderen sehr lang sind. Abdomen mit 3 ziemlich gleich grossen Längsreihen von Dornen, ausserdem durch feine Tuberkel etwas rauh erscheinend. Cerci kurz und spitz. Subgenitalplatte trapezförmig, nach hinten verbreitert, in der Mitte namentlich an der Basis mit stumpfem Längskiel, am Hinterrand leicht ausgebuchtet. Ovipositor gleichmässig nach aufwärts gebogen und gleichmässig gegen das Ende verschmälert, daselbst namentlich an der Unterseite deutlich gesägt.

Körperlänge 38 mm.
Pronotum 17·5 mm.
Hinterschenkel 24·5 mm.
Ovipositor 23·5 mm.

CAPLAND : Cap.

1 ♀, Type der Aberration. Coll. Brunner von Wattenwyl, No. 17898, *ex* Mus. Lübeck.

Ich hielt das besprochene Exemplar zunächst für eine neue Art, die *abbreviatus* Walk. (1869) und *namaqua* Pér. (1916) nahe steht, sich aber von beiden durch längeres Pronotum, viel längeren Ovipositor und vor allem durch die grossen dunklen Flecken im distalen Teil der Schenkel-Oberseite unterscheidet. Obwohl im allgemeinen Färbungsmerkmale bei Orthopteren nur ausnahmsweise zur Kennzeichnung einer Art herangezogen werden können, hielt ich in diesem Fall die dunklen Flecken für sehr charakteristisch. Ich gab die wichtigsten Merkmale der vermutlich neuen Art ganz kurz Herrn Dr. B. P. Uvarov in London bekannt und bekam darauf von ihm eine sehr interessante Mitteilung. Er hält es für möglich, dass mein Tier zu *H. namaqua* Pér. gehört, da eine der Paratypen (jetzt im British Museum) ebenso gefärbte Beine hat. Der Ovipositor misst nach brieflicher Angabe von Uvarov 23 mm. und nicht 13–15 mm. wie Péringuey (1916, *Ann. S. Afr. Mus.* **15** : 430) angibt! Nach dieser Berichtigung und Ergänzung zweifle ich nicht mehr daran, dass mein Exemplar nur eine Farben-Aberration von *namaqua* ist, da die sonstigen von Péringuey genannten Merkmale auch dem vorliegenden Tier zukommen. Doch dürfte meine ausführliche Beschreibung die Art leichter erkennen lassen. Die Aberration ist wohl nur durch die auffallende Färbung der Schenkel besonders gekennzeichnet.—Ich bin Herrn Dr. B. P. Uvarov für seine Hilfe sehr zu Dank verpflichtet.